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FEDERAL COMMUNICATIONS COMMISSION
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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Guidelines for Evaluating the
Environmental Effects of
Radiofrequency Radiation

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ET Docket No. 93-62

COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

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SUMMARY**Grandfathering**

TIA contends that existing equipment should be grandfathered indefinitely and new equipment should be required to meet RF emission requirements two years after approval of an appropriate SAR measurement standard. Two years after approval of SAR measurement standards, subsequent type acceptance/type approval applicants should be required to affirm that either the product for which the type acceptance is sought is excluded from C95.1 due to its power, frequency and operations; or, the product, while not within the limits of low power exclusion per C95.1, has been appropriately tested for SAR and found to be within the C95.1 standard limits.

Environmental Processing Exclusions

The existing categorical exclusions for environmental processing by FCC rule Parts 1.1306-1.1307 (47 CFR Sections 1.1306-1.1307) remain fully valid, and there is not legitimate basis to cause changes. Therefore, TIA requests that the categorical exclusions be extended.

Modulation Consideration

TIA asserts that the C95.1 document intentionally omitted applying any specialized constraints in regard to modulation affects. Therefore, TIA requests that the FCC adopt the C95.1 as written and without applying additional constraints specialized to modulated RF signals.

Rules Jurisdiction

TIA requests that the FCC clearly establish exclusive jurisdiction in this matter. This will deter a patchwork of various regulations that would hobble the market by causing most manufacturers to attempt to meet the most stringent standard.

Exposure Category Definition

TIA argues that C95.1, with its increased complexity, presents a need for practicality in its application. Moreover, TIA submits that the FCC, as an adopter of C95.1, has an obligation and a responsibility to provide users with rules that include practical implementation. The TIA has developed just and valid reasons for pre-assigning the controlled and uncontrolled categories according to FCC rules. TIA is convinced that this simple step will accomplish a transition of C95.1 from a scientific-medical document to a practical regulatory document that can be reasonably implemented.

Low Power Exclusion

The C95.1 requirement for Low Power Exclusion is lacking a definition of the referenced values for "radiated power" which establishes the delineating basis for exclusion. TIA recommends that any new rules include a clarification of C95.1 by incorporating the IEEE dictionary definition of "radiated power".

Holladay Petition

TIA requests that the Holladay Petition be dismissed because the Petition does not meet the Commission's most basic requirements.

I. Introduction

The Mobile Communications Division of the TIA represents manufacturers and suppliers of telecommunications equipment used primarily in the cellular, private land mobile radio, cordless radio, and personal communications services. Moreover, TIA is a national trade association accredited to produce technical standards for these products and their related systems. Based on the composition of its membership, TIA believes that it is uniquely qualified to comment on the proposals set forth in this rulemaking proceeding. In these Comments, the ANSI/IEEE C95.1-1992 standard (previously issued by IEEE as IEEE C95.1-1991), "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields" will be referred to as "C95.1" or the "1992 ANSI Standard."

The objective of the TIA's comments is to assist the Commission in establishing guidelines and thresholds to use in determining whether there is environmental significance in the emission of RF from FCC-regulated transmitters. While the TIA endorses C95.1, TIA believes that there must be a realistic justification for any new regulations. Thus, the TIA will demonstrate how the C95.1 findings can be practically implemented in the context of the mobile radio environment. Additionally, the TIA will substantiate the plan by which scientific/medical requirements of C95.1 can be realistically applied to the user environment.

II. Use of Radios Licensed Under Part 90 Should Be Classified as Occurring in the "Controlled Environment" and Use of Mobile and Portable Cellular Radios Licensed Under Part 22 Should be Classified as Occurring in the "Uncontrolled Environment".

The C95.1 Standard contains two recommendations for human exposure to radiofrequency energy. One of these recommendations applies to the "controlled environment" and the other to the "uncontrolled environment".

The controlled environment is generally considered as being applicable in the workplace. The uncontrolled environment, on the other hand, encompasses the general public, which may include, among others, infants, the aged, the ill, and those who are disabled. These groups of people are viewed by some as potentially being more sensitive to radiofrequency exposure than others; also, they might experience a longer duration of radiofrequency exposure. ANSI points out that specific population subgroups, such as these, have not been found to be more at risk than the general population from exposure to radiofrequency energy. It nevertheless did promulgate a two-tiered standard which contains more stringent requirements for the uncontrolled environment than for the controlled environment. It is noteworthy that ANSI indicates that the levels associated with the controlled environment are "scientifically derived", and that the levels associated with the uncontrolled environment include an "extra safety factor".

To facilitate insight into the difference between the controlled and uncontrolled environments, characteristics of the FCC Part 90 (private land mobile) and Part 22 (cellular telephone) services, 47 CFR Part 90 and 47 CFR Part 22, are shown below. ¹ These characteristics will be illustrated with regard to three aspects of each service. These are the characteristics of the people involved, of the service itself, and of the operation typically associated with the service.

Part 90

Part 22

Characteristics of the People

Adults

May also include children

Occupational

Anyone

Generally have knowledge of R.F

Generally do not know about R.F.

Characteristics of the Service

Described as two-way radio service

Described as telephone service

Is an "old" established service

Cellular, the main element of Part 22, is a relatively new service

Has many long-term user groups which have provided ongoing education.

Has relatively new user groups which have had somewhat less opportunity to provide education to members

Service may be self-provided

Service is provided by carrier

Employer provides radio as working tool

Individual must obtain own telephone, and pay bill

¹ Note that this comparison is not meant to imply that one service is any safer than the other with regards to radiofrequency energy. There is no scientific evidence to our knowledge that either service is in any way unsafe.

Characteristics of the Service

Employer provides radio maintenance

Individual must arrange to have telephone maintained

Generally must be eligible to use radio (ie. be licensed)

Anyone may use service

Licensees must have FCC Rules

Users will normally be unaware of FCC Rules

Characteristics of Operation

Uses microphone and radio control head

Uses telephone handset with keypad operation

Has push-to-talk simplex operation with intermittent transmitter activation during the message

Has full duplex operation with continuous transmitter activation during the message

Has short radio messages

Often has relatively long messages

User operates as part of a fleet

Operates as an individual

User aware of others on radio channel

Unaware of other channel users

Often use message time-out-timers

Do not use time-out-timers

Uses car or truck number as identification

Has telephone number

Involves a radio dispatcher

Has no radio dispatcher

Generally communicates with dispatcher or another mobile unit

Generally communicates with a wireline party

Dispatcher controls length of calls

Has no dispatcher control of call length

Often aware of radio base station/repeater

Generally unaware of system infrastructure

Often aware of system coverage limits

Generally can expect "seamless" coverage

Often experience radio noise and interference

Experience telephone type service quality

Often have training in radio use

Not trained in radio use

Normally limited use during 40 hour work week

May use at any time; potential for more use

The above list reflects characteristics which apply generally to the Part 90 and 22 Services as indicated. Whereas not all of the listed characteristics will necessarily apply to each user in each service, it is very likely that many of them will apply to any given user.

As can be seen from this list, the characteristics of the Part 90 services are quite different from the Part 22 services. The people are generally different; Part 90 normally involves working, healthy adults. Part 22 may involve almost any type of individual. The Part 90 services are usually described as radio services, and generally involve uses which have been prevalent for many years; many user groups exist which have been provided various types of training in radio during that time. The radio is provided as a working tool (and often a very important tool) by the employer. In contrast, Part 22 is generally thought of as a telephone service. The other Part 90 characteristics just discussed do not generally apply to the Part 22 services.

The operational characteristics of the two services differ markedly. Part 90 involves attributes which are unique to radio operation. The equipment design normally involves push-to-talk/release to listen operation with microphones and radio control heads. Messages are normally short, 8-20 seconds, and accommodate many users on a given channel. Most users operate within a "fleet", and communicate with the fleet dispatcher. Furthermore, these users generally have an awareness of the particulars of the radio system upon which they are operating, because, as with any occupational tool, it is necessary to have a reasonable knowledge of its operation.

In contrast, Part 22 involves a telephone-like instrument with full-duplex operation. A user simply enters a telephone number to reach the desired party. However, being the equipment used by the "caller" is similar to the wireline instrument used in the office or at home, he or she will generally be unaware of the specifics of the system that is being used. It operates functionally very similar to any telephone instrument.

Another significant difference between the Part 90 Service and the Part 22 Service is that all Part 90 radio users (with the exception of SMR end users) must have a discrete license to operate the radio. Even in the case of SMRs, the end user is individually responsible for appropriate use of the radio. In making this allowance, the FCC stated that:

the fact that [SMR] end users will no longer be separately licensed does not relieve them of their responsibility to comply with the appropriate provisions of Part 90 of our Rules and other federal laws, such as those relating to obscene language and drug related activities.²

Part 90 radio users who violate the Rules are subject to forfeitures, administrative sanctions and criminal prosecution.

² PR Docket 92-79, Report and Order at para, 14 (released August 31, 1993).

Furthermore, the SMR operator may also be held responsible to the extent that he has knowledge, but yet tolerates end user violations.³

The operational nature of the Part 90 radio services encompasses people who are, in many cases, "professional communicators". Even for those people who have somewhat less skill in the details of radio communications, there are, as indicated above, numerous characteristics uniquely associated with radio operation. In short, the attributes of the Part 90 services provide many opportunities for the users to become fully aware that they are using a radio device, and that the radio has electromagnetic energy associated with its use.

On the other hand, Part 22 users would not be expected to be aware that they were using a radio which was emitting radiofrequency energy. As a matter of fact, they might view their communications as an "extension" of the wireline telephone network and not a radio.

³ In line with this matter, the Commission may wish to consider amending Section 90.655 of its Rules as follows: relevant existing text is shown, with new text underlined.

All other end users' operations will be within the scope of the base station licensee. The base station licensee assumes responsibility to assure that those using its facilities operate in compliance with the FCC's technical and operational rules, including notifying end users that radios are radiofrequency emitters. All end users, however, will continue to be responsible to comply with Part 90 of our Rules and other federal laws.

On the basis of the above reasoning, TIA recommends that the Commission apply the controlled environment criteria to the users licensed under Rule Part 90. Also, because of relevant similarities with Part 90, licensees in Rule Parts 94, 95, and appropriate portions of Parts 21, 74, and 80 should also be included in the controlled environment.

The provisions for the uncontrolled environment should be applied to Part 22 users. The new Part 99 service is expected to be similar to the Part 22 service with regard to the above-discussed matter, and thus should also be included in the uncontrolled environment.⁴

Finally, the Commission has indicated in footnote 16 of its Notice that it will consider portable hand-held radios to be in the uncontrolled environment unless the users are "aware of the potential for exposure ...". Based on the rationale discussed above, TIA recommends that portable hand-held radios be categorized on the basis of the radio service in which they are used. That is, all portable hand-held radios used in the Part 90 services should be considered as being in the controlled environment.

⁴ TIA has been working actively to assist its membership in providing consistent and comprehensive information in their respective user instruction manuals relative to radiofrequency energy. We thus foresee the day when even Parts 22 and 99 could be considered for inclusion in the controlled environment category.

III. Low Power Exclusion Should Include a Definition of "Radiated Power"

Both the 1982 and the 1992 ANSI standards contain provisions for the exclusion of low power devices which meet the prescribed power limitation requirements. The FCC previously adopted the 1982 ANSI exclusion, and is proposing in this proceeding to adopt the updated version of the exclusion as reflected in the C95.1 ANSI standard.

TIA fully supports the Commission's proposed adoption of this provision as one method of determining adherence to the human exposure limits from radiofrequency energy. As discussed below, it will not always be possible to use the low power exclusion because of physical spacing limitations. It is, nevertheless, a very useful criterion to use when it is applicable, because of its simplicity. In short, it is easy to understand. This is particularly true for those who are not skilled in the field of engineering. For example, it would be quite easy to explain to members of the general public that a given radio unit meets the C95.1 standard and FCC requirements because it is of sufficiently low power as to be excluded from consideration. Absent this provision, it would be necessary to explain the concept of SAR, and to indicate that the given radio did, in fact, meet this requirement. Clearly, conveying the details of an SAR measurement to someone without a technical background is quite challenging.

The C95.1 standard indicates that the low power exclusion cannot be used if the radio (including any portion of the radio which may be radiating) is maintained within 2.5 cm of the human body. TIA agrees with the thrust of this limitation.

However, we believe it would be very useful to all concerned if future work were to be done by C95.1 which would prescribe a different, lower power, which could be excluded without an associated spacing limitation. TIA urges the Commission to encourage the development of such a provision, as it would simplify the matter for the Commission and for everyone else concerned. This will have particular relevance as the new Part 99 service is initiated.

To minimize ambiguities in interpretation of C95.1, the definition of radiated power requires clarification. Thus, TIA recommends that the Commission adopt the IEEE definition for radiated power output. Specifically, the IEEE Standard Dictionary of Electrical and Electronics Terms (5th edition) defines radiated power output (transmitter performance) as:

The average power output available at the antenna terminals, less the losses of the antenna, for any combination of signals transmitted when averaged over the longest repetitive modulation cycle.

The current C95.1 standard also limits the applicability of the low power exclusion to frequencies of 1.5 GHz and below. It is understood that this limitation is based on the lack of current experimental data upon which to justify an exclusion for higher frequencies; however, TIA is not aware of any reason that an extension to higher frequencies would be inappropriate. Due to the likely near-term existence of Part 99 services and the 200 MHz of spectrum currently utilized by the Federal Government which will be reallocated to non-Federal users (some of which will be even higher in frequency than that to be used in the Part 99 Service), the Commission is urged to take appropriate steps to cause this 1.5 GHz limitation to be modified upward.

The Commission may wish to consider a limit as high as 6 GHz, which is the current upper limit for SAR exclusion provisions in the 1992 ANSI Standard.

TIA wishes to reiterate here, as discussed elsewhere in this filing, that the low power exclusion for Part 90 and other similar services should be based upon the limits for the controlled environment. The users of hand-held portable radios in Part 90, in particular, would be expected to have the same awareness of the potential for exposure to radiofrequency energy as, for example, the users of mobile units, and thus should be similarly categorized.

In some cases, a given low power radio may exceed the power limitations prescribed by C95.1 for exclusion. However, it may still be possible to justify exclusion by measuring the SAR or by other analysis.

The Commission solicits comment upon the appropriate procedure to be used to report compliance with the provisions of an SAR exclusion. The first step in establishing SAR compliance is to use a measurement procedure and facility which is appropriate. This could be accomplished by using the services of an independent test laboratory which has been accepted by the Commission. Also, an individual organization might establish and use its own testing facility to do the necessary measurements. In any case, the testing must be based upon a valid measurement procedure used in a properly designed and equipped laboratory. TIA is willing to consider acting as the focal point for the development of such necessary standards. It would accomplish this through its normal ANSI accredited standard setting process.

Once an accepted testing process is in place, TIA recommends that the Commission use its routine equipment authorization process as the vehicle for reporting SAR compliance. This could be done in one of two ways. The FCC equipment authorization form could contain a section where the applicant checks a box indicating that the candidate equipment was tested by using the accredited testing process, and that the unit did, in fact, meet the requirements of C95.1 for exclusion. Alternatively, the applicant could attach a separate exhibit indicating this same information. In any case, TIA does not believe it necessary or useful for the applicants to routinely submit details of its testing. If the Commission has a need for such information, it could request it on a case-by-case basis.

IV. The Holladay Petition Should be Dismissed.

The Notice states that the Commission has received a Petition for Rulemaking filed by Ken Holladay which seeks to prohibit the sale of all hand-held telephones and radios that operate between 400 and 1300 MHz pending evaluation of any health risk.⁵ It is the unequivocal belief of the TIA that this Petition should be dismissed because it plainly does "not warrant consideration by the Commission."⁶

The Commission's rules state that

"a petition shall set forth the text or substance of the proposed rule, amendment, or rule to be repealed, together with all facts, views, arguments and data deemed to support the action requested, and shall indicate how the interests of petitioner will be affected."

In TIA's judgment, the Commission requirements for Petitions are abundantly clear, and the Petitioner, Mr. Holladay, has met none of these criteria. The Petition in no way attempts to detail which of the Commission's rules should be changed, and lacking this specificity, a complete review of all Commission rules pertaining to private radio and cellular would be required.

⁵ See fn 21 of the Notice.

⁶ 47 CFR 1.401(e)

⁷ 47 CFR 1.401(c)

Even the very low power, unlicensed intentional radiator devices permitted under Part 15 of the Commission's Rules (47 CFR Part 15) would be ensnared by Mr. Holladay's proposed rule change since the Petition seeks to "... prohibit the sale of all handheld telephones and radios..." (emphasis added). Without any exclusion for low power devices, the requested rule change could be interpreted to encompass every radiofrequency device including receive-only devices that contain no transmitter.⁸ Furthermore, the Petitioner fails to define what would constitute a "health risk" or even suggest what this might be. Based on the evidence accumulated by immense years of experience by FCC licensed Land Mobile users of portable radio emitters, TIA can conceive of no definition of "health risk" which would create cause for the disruptive actions contemplated by this Petition.

Conjointly, TIA steadfastly maintains, and will argue vigorously, that the enactment of this Petition to "...prohibit the sale of all hand-held telephones and radios..." would create in itself a health risk of immeasurably greater magnitude to the equipment users by denial of proven safety and security offered by hand-held telecommunications equipment. Clearly, this Petition is not worthy of due consideration in that it not only fails to present a single fact of why these products should be prohibited, but it also declines to indicate how the interests of Mr. Holladay will be affected.

⁸ Thus, devices such as scanner receivers, alarm and security monitors, portable satellite receivers, and pagers would be prohibited as would RF heating and sealing equipment and every device operated within the 400-1300 MHz band.

While the TIA believes that the Commission should categorically dismiss this Petition as frivolous and as a Petition that plainly does not conform with the rules, TIA views Mr. Holladay as a well-intentioned citizen who has been swept into the emotional sensitivities surrounding this issue. We therefore believe that it is befitting to relay certain facts to the Commission and Mr. Holladay regarding the safety record of cellular and private radios. For example, private land mobile radios have been effectively used for more than 55 years with arguably in excess of 515.4 billion minutes⁹ of exposure to RF users. Of these billions of minutes of real operation involving normal telecommunications exposure of RF to humans, to the best of TIA's knowledge, there has not been a single substantiated case of harm due to RF exposures. In addition, portable radios and telephones provide a very vital function in law enforcement, narcotics interdiction and surveillance that provides safety and life protection to not only public safety officers and Federal Government agents, but also provides services and timely responses to aid in protection of the public from bodily harm.

⁹ In arriving at this figure, the following assumptions were made:
The average number of units in service is 4.36 million for a 55 year period;
The average unit transmit time per hour is 0.5 minutes;
1/3 of use of radios is "continuous" service at 24 hrs/day & 7 days/week;
2/3 of use of radios is "workday" service at 8 hrs/day & 5 days/week.
Thus: Total accumulated minutes of exposure time is 515.4 X 10 (9th power).

The 13 million cellular phone users also contribute to battling crime and crises with their cellular phones. Cellular phones are not only used for convenience, but are used to report drunk drivers, auto accidents, criminal activity, car trouble and traffic problems everyday. A 1993 national poll found that approximately 50 percent of cellular users have called to report car trouble, medical emergency, crimes in progress or drunk driving. Additionally, 91% percent of those who recently responded to a Gallup poll said that safety and security were the best reasons for owning a cellular phone. The incremental growth of cellular may be partially a response to the recent surge in crimes such as carjackings and bump-and-robs. The CTIA estimates that in 1992 approximately 500,000 calls a month were placed to 9-1-1 and other emergency numbers throughout the United States. While cellular phones can help an individual's productivity, they can also save lives and property. As the counterpart to the PLMR industry, cellular phones have been in operation for 104.3 billion¹⁰ minutes and to the best of TIA knowledge, there has not been a single substantiated case of harm due to RF exposures.

¹⁰ In arriving at this figure, the following assumptions were made:

The average number of units in service is 3.8 million for a 10 year period;

The average unit transmit time per hour is 1.0 minutes;
1/10 of use of cellular radio is "continuous" service at 7 days/week & 24 hrs/day;

9/10 of use of cellular radio is "workday" service at 5 days/week & 8 hours/day.

Thus: Total accumulated minutes of exposure time is 104.3 X 10 (9th power).

To withhold all portable radio equipment from use as an enhancement of security for the users and as a law enforcement tool on the basis of this unfounded Petition would introduce a serious and misguided constraint on law enforcement agencies as well as compromising the peace and safety for U.S. Citizens. For the reasons set forth above, TIA specifically requests that the Holladay Petition be dismissed.

V. Land Mobile Radio Should Remain Categorically Excluded from Environmental Evaluation Based on the Absence of Contradictory Evidence.

By means of the Second Report and Order in General Docket No. 79-144, 2 FCC Rcd 2064 (1987); Erratum, 2 FCC Rcd 2526 (1987), the FCC categorically excluded from environmental processing, with regard to exposure of persons to radiofrequency energy, applications for authorizations for facilities that would function under a number of Parts of the FCC Rules. Facilities that would function in the Broadcast Service (Part 73), Broadcast Auxiliary Service (Part 74), and Satellite Radio Service (Part 25) would be scrutinized for compliance with the C95.1-1982 exposure standard; facilities that would function under other Parts of the FCC Rules would not.

In the above-mentioned proceeding, the Commission concluded that:

no data or specific examples were presented to support EPA's position, and data submitted by other respondents are persuasive in showing that excessive exposure is unlikely. Therefore, until such time as contradictory evidence is brought to our attention, we are adopting our original proposal to exclude these types of transmitting facilities from routine environmental evaluation with respect to RF radiation. Accordingly, applicants for facilities licensed under Parts 21, 22, 23, 90, 94 and other appropriate Parts of the FCC's Rules are not required to routinely submit environmental information concerning exposure to RF radiation." ¹¹ (emphasis added).

¹¹ See 2 FCC Rcd 2064 at para. 16. EPA's comments were at variance with the majority of the respondents. According to the EPA, exposure 'well above' ANSI limits can exist close to base stations and mobile antennas. The EPA's argument was rejected by the Commission due to lack of data or specific examples.

TIA believes that the FCC Order issued in 1987 has been validated as correct, as evidenced by the accumulation of 6 years of additional experience with tens of millions of users operating land mobile radio transmitters. By the best information available, not a single case of human harm due to this radiofrequency energy exposure has been substantiated. Additionally, it should be noted that in 1987, when the FCC issued the Order which categorically excluded the Land Mobile industry, the industry had been providing useful communications for FCC licensees for over 55 years without any verified evidence of human harm from radiofrequency exposure. Based on the untarnished history of the Land Mobile industry reinforced by the lack of any "contradictory evidence", TIA unequivocally believes that the established categorical exclusion should continue.

The Commission based its decision in the 1987 Order on two factors. The first is its power under the National Environmental Policy Act of 1969 as amended, 42 U.S.C. § 4321 et seq. ("NEPA") to categorically exclude from environmental consideration those proposals which do not normally have significant consequences.¹² The second was an exhaustive record of the exposure potential of many types of radio equipment, especially mobile transceivers.

¹² See Report and Order in General Docket No. 79-144, 50 Fed. Reg. 11151 (1985) at n.9.

The FCC wisely decided that, while there was a remote, hypothetical possibility that such equipment could cause exposures in excess of the ANSI standard, the risk of Land Mobile exposure was, in fact, very small, and adopted a categorical exclusion for this industry.¹³ It is worthwhile to compare the 1982 and the 1992 ANSI standards to substantiate that the operation of Land Mobile with regard to the instant issue is basically unchanged. The major change in the 1992 ANSI standard compared to the 1982 standard is the addition of the uncontrolled environment. Specifically, the permitted radiofrequency energy limits associated with the uncontrolled environment are five times more stringent than those for the controlled environment. With regard to the controlled environment, however, the permitted levels of radiofrequency energy are generally not changed in the 1992 standard except for the permitted power to qualify for a low power exclusion which is changed; this will be discussed subsequently.

The Commission indicated in its Notice that there may be some relatively high-powered land mobile base stations which may warrant special consideration, and would not therefore, be appropriate for categorical exclusion.

¹³ It should be recognized that the C95.1 Standard is very conservative. The exposure limits it sets forth are substantially below the levels at which effects on living tissue occur. Thus, even a rare exposure that might temporarily exceed the C95.1 Standard due to an unusual equipment configuration, or user or bystander situation, will likely pose an infinitesimal risk of actual human harm. Thus, the Commission is justified in continuing the categorical exclusions it adopted in 1987.

For example, there are provisions in the Rules which permit paging base stations to have a power level as high as 3500 watts ERP. It should be noted, however, that powers this high have been permitted for some time, including the time when the Commission adopted the 1982 ANSI standard as the basis of its current rules. Part 90 Rules then and now permit 350 watts of transmitter output power, and do not limit the gain of the antenna which can be used with this transmitter in, for example, the 150 MHz and 450 MHz bands. When a 350 watt transmitter is used in conjunction with an antenna with a gain of 10 dB, the resultant power is the equivalent of 3500 watts ERP, the same power authorized for "high power" paging base stations.

In those cases where high-power stations do exist, the required geographic spacing to achieve adherence to the ANSI standard is only on the order of several meters (or less depending on antenna type). This spacing, although somewhat larger than a typical spacing of one or two meters required for lower power stations, is normally readily achievable by employing appropriate work practices for those people who must be in (and have access to) the restricted areas where such installations are located. In summary, base station powers are not different today than they were in the past, nor is the power expected to increase in the foreseeable future.